

~~REPLACED~~  
By  
#0

SEQUENCE LISTING

<110> WU, Xue-Ru  
SUN, Tung-Tien

<120> TRANSGENIC ANIMALS AS URINARY BIOREACTORS FOR THE  
PRODUCTION OF POLYPEPTIDE IN THE URINE, RECOMBINANT DNA  
CONSTRUCT FOR KIDNEY-SPECIFIC EXPRESSION, AND METHOD OF  
USING SAME

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<140> NOT YET ASSIGNED

<141> 2000-06-26

<150> 60/108,195

<151> 1998-11-13

<150> 60/142,925

<151> 1999-07-09

<150> 09/438,785

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<170> PatentIn Ver. 2.1

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D E C O D I N G  
E n c o d i n g

Thr Pro Trp Phe Thr Val Ala Gly Ala Asn Asp Ser Pro Glu Ala Arg  
20 25 30

Arg Cys Ser Glu Cys His Asp Asn Ala Thr Cys Val Leu Asp Gly Val  
35 40 45

Val Thr Thr Cys Ser Cys Gln Ala Gly Phe Thr Gly Asp Gly Leu Val  
50 55 60

Cys Glu Asp Ile Asp Glu Cys Ala Thr Pro Trp Thr His Asn Cys Ser  
65 70 75 80

Asn Ser Ile Cys Met Asn Thr Leu Gly Ser Tyr Glu Cys Ser Cys Gln  
85 90 95

Asp Gly Phe Arg Leu Thr Pro Gly Leu Gly Cys Ile Asp Val Asn Glu  
100 105 110

Cys Thr Glu Gln Gly Leu Ser Asn Cys His Ser Leu Ala Thr Cys Val  
115 120 125

Asn Thr Glu Gly Ser Tyr Ser Cys Val Cys Pro Lys Gly Tyr Arg Gly  
130 135 140

Asp Gly Trp Tyr Cys Glu Cys Ser Pro Gly Phe Cys Glu Pro Gly Leu  
145 150 155 160

Asp Cys Leu Pro Gln Gly Pro Ser Gly Lys Leu Val Cys Gln Asp Pro  
165 170 175

Cys Asn Val Tyr Glu Thr Leu Thr Glu Tyr Trp Arg Ser Thr Asp Tyr  
180 185 190

Gly Ala Gly Tyr Ser Cys Asp Ser Asp Met His Gly Trp Tyr Arg Phe  
195 200 205

Thr Gly Gln Gly Val Arg Met Ala Glu Thr Cys Val Pro Val Leu  
210 215 220

Arg Cys Asn Thr Ala Ala Pro Met Trp Leu Asn Gly Ser His Pro Ser  
225 230 235 240

Ser Arg Glu Gly Ile Val Ser Arg Thr Ala Cys Ala His Trp Ser Asp  
245 250 255

His Cys Cys Leu Trp Ser Thr Glu Ile Gln Val Lys Ala Cys Pro Gly  
260 265 270

Gly Phe Tyr Val Tyr Asn Leu Thr Glu Pro Pro Glu Cys Asn Leu Ala  
275 280 285

Tyr Cys Thr Asp Pro Ser Ser Val Glu Gly Thr Cys Glu Glu Cys Gly  
290 295 300

Val Asp Glu Asp Cys Val Ser Asp Asn Gly Arg Trp Arg Cys Gln Cys  
305 310 315 320

Lys Gln Asp Phe Asn Val Thr Asp Val Ser Leu Leu Glu His Arg Leu  
325 330 335

Glu Cys Glu Ala Asn Glu Ile Lys Ile Ser Leu Ser Lys Cys Gln Leu  
340 345 350

Gln Ser Leu Gly Phe Met Lys Val Phe Met Tyr Leu Asn Asp Arg Gln  
355 360 365

Cys Ser Gly Phe Ser Glu Arg Gly Glu Arg Asp Trp Met Ser Ile Val  
370 375 380

Thr Pro Ala Arg Asp Gly Pro Cys Gly Thr Val Leu Arg Arg Asn Glu  
385 390 395 400

Thr His Ala Thr Tyr Ser Asn Thr Leu Tyr Leu Ala Ser Glu Ile Ile  
405 410 415

Ile Arg Asp Ile Asn Ile Arg Ile Asn Phe Glu Cys Ser Tyr Pro Leu  
420 425 430

Asp Met Lys Val Ser Leu Lys Thr Ser Leu Gln Pro Met Val Ser Ala  
435 440 445

Leu Asn Ile Ser Leu Gly Gly Thr Gly Lys Phe Thr Val Gln Met Ala  
450 455 460

Leu Phe Gln Asn Pro Thr Tyr Thr Gln Pro Tyr Gln Gly Pro Ser Val  
465 470 475 480

Met Leu Ser Thr Glu Ala Phe Leu Tyr Val Gly Thr Met Leu Asp Gly  
485 490 495

Gly Asp Leu Ser Arg Phe Val Leu Leu Met Thr Asn Cys Tyr Ala Thr  
500 505 510

Pro Ser Ser Asn Ser Thr Asp Pro Val Lys Tyr Phe Ile Ile Gln Asp  
515 520 525

Arg Cys Pro His Thr Glu Asp Thr Thr Ile Gln Val Thr Glu Asn Gly  
530 535 540

Glu Ser Ser Gln Ala Arg Phe Ser Ile Gln Met Phe Arg Phe Ala Gly  
545 550 555 560

Asn Ser Asp Leu Val Tyr Leu His Cys Glu Val Tyr Leu Cys Asp Thr  
565 570 575

Met Ser Glu Gln Cys Lys Pro Thr Cys Ser Gly Thr Arg Tyr Arg Ser  
580 585 590

Gly Asn Phe Ile Asp Gln Thr Arg Val Leu Asn Leu Gly Pro Ile Thr  
595 600 605

Arg Gln Gly Val Gln Ala Ser Val Ser Lys Ala Ala Ser Ser Asn Leu  
610 615 620

Gly Phe Leu Ser Ile Trp Leu Leu Leu Phe Leu Ser Ala Thr Leu Thr  
625 630 635 640

Leu Met Val His

<210> 39

<211> 642

<212> PRT

<213> MOUSE UROMODULIN

<400> 39

Met Gly Ile Pro Leu Thr Trp Met Leu Leu Val Met Met Val Thr Ser  
1 5 10 15

Trp Phe Thr Leu Ala Gly Ala Ser Asn Ser Thr Glu Ala Arg Arg Cys  
20 25 30

Ser Glu Cys His Asn Asn Ala Thr Cys Thr Val Asp Gly Val Val Thr  
35 40 45

Thr Cys Ser Cys Gln Thr Gly Phe Thr Gly Asp Gly Leu Val Cys Glu  
50 55 60

Asp Met Asp Glu Cys Ala Thr Pro Trp Thr His Asn Cys Ser Asn Ser  
65 70 75 80

Ser Cys Val Asn Thr Pro Gly Ser Phe Lys Cys Ser Cys Gln Asp Gly  
85 90 95

Phe Arg Leu Thr Pro Gly Leu Gly Cys Thr Asp Val Asp Glu Cys Ser  
 100 105 110  
  
 Glu Gln Gly Leu Ser Asn Cys His Ala Leu Ala Thr Cys Val Asn Thr  
 115 120 125  
  
 Glu Gly Asp Tyr Leu Cys Val Cys Pro Lys Gly Phe Thr Gly Asp Gly  
 130 135 140  
  
 Trp Tyr Cys Glu Cys Ser Pro Ser Ser Cys Glu Pro Gly Leu Asp Cys  
 145 150 155 160  
  
 Leu Pro Gln Gly Pro Asp Gly Lys Leu Val Cys Gln Asp Pro Cys Asn  
 165 170 175  
  
 Thr Tyr Glu Thr Leu Thr Glu Tyr Trp Arg Ser Thr Glu Tyr Gly Val  
 180 185 190  
  
 Gly Tyr Ser Cys Asp Ala Gly Gln His Gly Trp Tyr Arg Phe Thr Gly  
 195 200 205  
  
 Gln Gly Val Arg Met Ala Glu Thr Cys Val Pro Val Leu Ala Cys  
 210 215 220  
  
 Asn Thr Ala Ala Pro Met Trp Leu Asn Gly Ser His Pro Ser Ser Ser  
 225 230 235 240  
  
 Glu Gly Ile Val Ser Arg Thr Ala Cys Ala His Trp Ser Asp His Cys  
 245 250 255  
  
 Cys Arg Trp Ser Thr Glu Ile Gln Val Lys Ala Cys Pro Gly Gly Phe  
 260 265 270  
  
 Tyr Ile Tyr Asn Leu Thr Glu Pro Pro Glu Cys Asn Leu Ala Tyr Cys  
 275 280 285  
  
 Thr Asp Pro Ser Ser Val Glu Gly Thr Cys Glu Glu Cys Arg Val Asp  
 290 295 300  
  
 Glu Asp Cys Ile Ser Asp Asn Gly Arg Trp Arg Cys Gln Cys Lys Gln  
 305 310 315 320  
  
 Asp Ser Asn Ile Thr Asp Val Ser Gln Leu Glu Tyr Arg Leu Glu Cys  
 325 330 335  
  
 Gly Ala Asn Asp Ile Lys Met Ser Leu Arg Lys Cys Gln Leu Gln Ser  
 340 345 350

Leu Gly Phe Met Asn Val Phe Met Tyr Leu Asn Asp Arg Gln Cys Ser  
355 360 365

Gly Phe Ser Glu Ser Asp Glu Arg Asp Trp Met Ser Ile Val Thr Pro  
370 375 380

Ala Arg Asn Gly Pro Cys Gly Thr Val Leu Arg Arg Asn Glu Thr His  
385 390 395 400

Ala Thr Tyr Ser Asn Thr Leu Tyr Leu Ala Asn Ala Ile Ile Arg  
405 410 415

Asp Ile Ile Ile Arg Met Asn Phe Glu Cys Ser Tyr Pro Leu Asp Met  
420 425 430

Lys Val Ser Leu Lys Thr Ser Leu Gln Pro Met Val Ser Ala Leu Asn  
435 440 445

Ile Ser Leu Gly Gly Thr Gly Lys Phe Thr Val Arg Met Ala Leu Phe  
450 455 460

Gln Ser Pro Thr Tyr Thr Gln Pro Tyr Gln Gly Pro Ser Val Met Leu  
465 470 475 480

Ser Thr Glu Ala Phe Leu Tyr Val Gly Thr Met Leu Asp Gly Gly Asp  
485 490 495

Leu Ser Arg Phe Val Leu Leu Met Thr Asn Cys Tyr Ala Thr Pro Ser  
500 505 510

Ser Asn Ser Thr Asp Pro Val Lys Tyr Phe Ile Ile Gln Asp Ser Cys  
515 520 525

Pro Arg Thr Glu Asp Thr Thr Ile Gln Val Thr Glu Asn Gly Glu Ser  
530 535 540

Ser Gln Ala Arg Phe Ser Val Gln Met Phe Arg Phe Ala Gly Asn Tyr  
545 550 555 560

Asp Leu Val Tyr Leu His Cys Glu Val Tyr Leu Cys Asp Ser Thr Ser  
565 570 575

Glu Gln Cys Lys Pro Thr Cys Ser Gly Thr Arg Phe Arg Cys Gly Asn  
580 585 590

Phe Ile Asp Gln Thr Arg Val Leu Asn Leu Gly Pro Ile Thr Arg Gln  
595 600 605

Gly Val Gln Ala Ser Val Ser Lys Ala Ala Ser Ser Asn Leu Arg Leu  
610 615 620

Leu Ser Ile Trp Leu Leu Leu Phe Leu Ser Ala Thr Leu Ile Phe Met  
625 630 635 640

Val Gln

<210> 40

<211> 640

<212> PRT

<213> HUMAN UROMODULIN

<400> 40

Met Gly Gln Pro Ser Leu Thr Trp Met Leu Met Val Val Val Ala Ser  
1 5 10 15

Trp Phe Ile Thr Thr Ala Ala Thr Asp Thr Ser Glu Ala Arg Trp Cys  
20 25 30

Ser Glu Cys His Ser Asn Ala Thr Cys Thr Glu Asp Glu Ala Val Thr  
35 40 45

Thr Cys Thr Cys Gln Glu Gly Phe Thr Gly Asp Gly Leu Thr Cys Val  
50 55 60

Asp Leu Asp Glu Cys Ala Ile Pro Gly Ala His Asn Cys Ser Ala Asn  
65 70 75 80

Ser Ser Cys Val Asn Thr Pro Gly Ser Phe Ser Cys Val Cys Pro Glu  
85 90 95

Gly Phe Arg Leu Ser Pro Gly Leu Gly Cys Thr Asp Val Asp Glu Cys  
100 105 110

Ala Glu Pro Gly Leu Ser His Cys His Ala Leu Ala Thr Cys Val Asn  
115 120 125

Val Val Gly Ser Tyr Leu Cys Val Cys Pro Ala Gly Tyr Arg Gly Asp  
130 135 140

Gly Trp His Cys Glu Cys Ser Pro Gly Ser Cys Gly Pro Gly Leu Asp  
145 150 155 160

Cys Val Pro Glu Gly Asp Ala Leu Val Cys Ala Asp Pro Cys Gln Ala

165

170

175

His Arg Thr Leu Asp Glu Tyr Trp Arg Ser Thr Glu Tyr Gly Glu Gly  
 180 185 190

Tyr Ala Cys Asp Thr Asp Leu Arg Gly Trp Tyr Arg Phe Val Gly Gln  
 195 200 205

Gly Gly Ala Arg Met Ala Glu Thr Cys Val Pro Val Leu Arg Cys Asn  
 210 215 220

Thr Ala Ala Pro Met Trp Leu Asn Gly Thr His Pro Ser Ser Asp Glu  
 225 230 235 240

Gly Ile Val Ser Arg Lys Ala Cys Ala His Trp Ser Gly His Cys Cys  
 245 250 255

Leu Trp Asp Ala Ser Val Gln Val Lys Ala Cys Ala Gly Gly Tyr Tyr  
 260 265 270

Val Tyr Asn Leu Thr Ala Pro Pro Glu Cys His Leu Ala Tyr Cys Thr  
 275 280 285

Asp Pro Ser Ser Val Glu Gly Thr Cys Glu Glu Cys Ser Ile Asp Glu  
 290 295 300

Asp Cys Lys Ser Asn Asn Gly Arg Trp His Cys Gln Cys Lys Gln Asp  
 305 310 315 320

Phe Asn Ile Thr Asp Ile Ser Leu Leu Glu His Arg Leu Glu Cys Gly  
 325 330 335

Ala Asn Asp Met Lys Val Ser Leu Gly Lys Cys Gln Leu Lys Ser Leu  
 340 345 350

Gly Phe Asp Lys Val Phe Met Tyr Leu Ser Asp Ser Arg Cys Ser Gly  
 355 360 365

Phe Asn Asp Arg Asp Asn Arg Asp Trp Val Ser Val Val Thr Pro Ala  
 370 375 380

Arg Asp Gly Pro Cys Gly Thr Val Leu Thr Arg Asn Glu Thr His Ala  
 385 390 395 400

Thr Tyr Ser Asn Thr Leu Tyr Leu Ala Asp Glu Ile Ile Ile Arg Asp  
 405 410 415

Leu Asn Ile Lys Ile Asn Phe Ala Cys Ser Tyr Pro Leu Asp Met Lys

	420	425	430
Val Ser Leu Lys Thr Ala Leu Gln Pro Met Val Ser Ala Leu Asn Ile			
435	440	445	
Arg Val Gly Gly Thr Gly Met Phe Thr Val Arg Met Ala Leu Phe Gln			
450	455	460	
Thr Pro Ser Tyr Thr Gln Pro Tyr Gln Gly Ser Ser Val Thr Leu Ser			
465	470	475	480
Thr Glu Ala Phe Leu Tyr Val Gly Thr Met Leu Asp Gly Asp Leu			
485	490	495	
Ser Arg Phe Ala Leu Leu Met Thr Asn Cys Tyr Ala Thr Pro Ser Ser			
500	505	510	
Asn Ala Thr Asp Pro Leu Lys Tyr Phe Ile Ile Gln Asp Arg Cys Pro			
515	520	525	
His Thr Arg Asp Ser Thr Ile Gln Val Val Glu Asn Gly Glu Ser Ser			
530	535	540	
Gln Gly Arg Phe Ser Val Gln Met Phe Arg Phe Ala Gly Asn Tyr Asp			
545	550	555	560
Leu Val Tyr Leu His Cys Glu Val Tyr Leu Cys Asp Thr Met Asn Glu			
565	570	575	
Lys Cys Lys Pro Thr Cys Ser Gly Thr Arg Phe Arg Ser Gly Ser Val			
580	585	590	
Ile Asp Gln Ser Arg Val Leu Asn Leu Gly Pro Ile Thr Arg Lys Gly			
595	600	605	
Val Gln Ala Thr Val Ser Arg Ala Phe Ser Ser Leu Gly Leu Leu Lys			
610	615	620	
Val Trp Leu Pro Leu Leu Leu Ser Ala Thr Leu Thr Leu Thr Phe Gln			
625	630	635	640

<210> 41  
<211> 459  
<212> PRT

<213> BOVINE UROMODULIN

<400> 41

Met Lys Cys Ser Asn Met Trp Met Ala Ala Val Val Thr Ser Trp Val  
1 5 10 15

Ala Ala Thr Asp Thr Ser Ser Ala Lys Ser Cys Ser Cys His Ser Asn  
20 25 30

Ala Thr Cys Thr Val Asp Gly Ala Ala Thr Thr Cys Ala Cys Gly Thr  
35 40 45

Gly Asp Gly Cys Val Asp Asp Cys Ala Val Gly Ala His Asn Cys Ser  
50 55 60

Ala Thr Lys Ser Cys Val Asn Thr Gly Ser Tyr Thr Cys Val Cys Gly  
65 70 75 80

Ser Ser Gly Cys Asp Val Asp Cys Ala Gly Ser Arg Cys His Ala Ala  
85 90 95

Thr Cys Asn Gly Gly Asn Tyr Ser Cys Val Cys Ala Gly Tyr Gly Asp  
100 105 110

Gly Arg His Cys Cys Ser Gly Ser Cys Gly Gly Asp Cys Val Arg Gly  
115 120 125

Asp Ala Val Cys Val Asp Cys Val His Arg Asp Tyr Trp Arg Ser Thr  
130 135 140

Tyr Gly Ser Gly Tyr Cys Asp Val Ser Gly Gly Trp Tyr Arg Val Gly  
145 150 155 160

Ala Gly Val Arg Thr Cys Val Val His Cys Asn Thr Ala Ala Met Trp  
165 170 175

Asn Gly Thr His Ser Ser Asp Gly Val Asn Arg Val Ala Cys Ala His  
180 185 190

Trp Ser Gly Asp Cys Cys Trp Asp Ala Val Lys Ala Cys Ala Gly Gly  
195 200 205

Tyr Tyr Val Tyr Asn Thr Ala Cys His Ala Tyr Cys Thr Asp Ser Ser  
210 215 220

Val Gly Thr Cys Cys Arg Val Asp Asp Cys Lys Ser Asp Asn Gly Trp  
225 230 235 240

His Cys Cys Lys Asp Asn Val Thr Asp Ser Arg Arg Cys Gly Val Asp  
 245 250 255  
  
 Asp Lys Ser Ser Lys Cys Lys Ser Gly Lys Val Met Tyr His Asp Ser  
 260 265 270  
  
 Cys Ser Gly Thr Arg Gly Asp Arg Asp Trp Met Ser Val Val Thr Ala  
 275 280 285  
  
 Arg Asp Gly Cys Gly Thr Val Met Thr Arg Asn Thr His Ala Thr Tyr  
 290 295 300  
  
 Ser Asn Thr Tyr Ala Asp Arg Asp Asn Arg Asn Ala Cys Ser Tyr Asp  
 305 310 315 320  
  
 Met Lys Val Ser Lys Thr Ser Met Val Ser Ala Asn Ser Met Gly Gly  
 325 330 335  
  
 Thr Gly Thr Thr Val Arg Met Ala Ser Ala Tyr Thr Tyr Gly Ser Ser  
 340 345 350  
  
 Val Thr Ser Thr Ala Tyr Val Gly Thr Met Asp Gly Gly Asp Ser Arg  
 355 360 365  
  
 Val Met Thr Asn Cys Tyr Ala Thr Ser Ser Asn Ala Thr Asp Lys Tyr  
 370 375 380  
  
 Asp Arg Cys Arg Ala Ala Asp Ser Thr Val Asn Gly Ser Gly Arg Ser  
 385 390 395 400  
  
 Val Met Arg Ala Gly Asn Tyr Asp Val Tyr His Cys Val Tyr Cys Asp  
 405 410 415  
  
 Thr Val Asn Lys Cys Arg Thr Cys Thr Arg Arg Ser Gly Ser Asp Thr  
 420 425 430  
  
 Arg Val Asn Gly Thr Arg Lys Gly Gly Ala Ala Met Ser Arg Ala Ala  
 435 440 445  
  
 Ser Ser Gly Val Trp Ser Ala Thr Thr Met Ser  
 450 455

<210> 42  
 <211> 34  
 <212> PRT  
 <213> RAT UROMODULIN

<400> 42

Gly Val Gln Ala Ser Val Ser Lys Ala Ala Ser Ser Asn Leu Gly Phe  
1 5 10 15

Leu Ser Ile Trp Leu Leu Leu Phe Leu Ser Ala Thr Leu Thr Leu Met  
20 25 30

Val His

<210> 43

<211> 34

<212> PRT

<213> MOUSE UROMODULIN

<400> 43

Gly Val Gln Ala Ser Val Ser Lys Ala Ala Ser Ser Asn Leu Arg Leu  
1 5 10 15

Leu Ser Ile Trp Leu Leu Leu Phe Leu Ser Ala Thr Leu Ile Phe Met  
20 25 30

Val Gln

<210> 44

<211> 33

<212> PRT

<213> HUMAN UROMODULIN

<400> 44

Gly Val Gln Ala Thr Val Ser Arg Ala Phe Ser Ser Leu Gly Leu Leu  
1 5 10 15

Lys Val Trp Leu Pro Leu Leu Leu Ser Ala Thr Leu Thr Leu Thr Phe  
20 25 30

Gln

<210> 45

<211> 34

<212> PRT

<213> BOVINE UROMODULIN

<400> 45  
Gly Gly Gln Ala Ala Met Ser Arg Ala Ala Pro Ser Ser Leu Gly Leu  
1 5 10 15  
  
Leu Gln Val Trp Leu Pro Leu Leu Ser Ala Thr Leu Thr Leu Met  
20 25 30  
  
Ser Pro

<210> 46  
<211> 42  
<212> PRT  
<213> TORPEDO  
  
<400> 46  
Asn Gln Phe Leu Pro Lys Leu Leu Asn Ala Thr Ala Cys Asp Gly Glu  
1 5 10 15

Leu Ser Ser Ser Gly Thr Ser Ser Ser Lys Gly Ile Ile Phe Tyr Val  
20 25 30  
  
Leu Phe Ser Ile Leu Tyr Leu Ile Phe Tyr  
35 40

<210> 47  
<211> 42  
<212> PRT  
<213> PLACENTA  
  
<400> 47  
Thr Ala Cys Asp Leu Ala Pro Pro Ala Gly Thr Thr Asp Ala Ala His  
1 5 10 15

Pro Gly Arg Ser Val Val Pro Ala Leu Leu Pro Leu Leu Ala Gly Thr  
20 25 30  
  
Leu Leu Leu Leu Glu Thr Ala Thr Ala Pro  
35 40

<210> 48  
<211> 41  
<212> PRT  
<213> DECAY ACCELERATING FACTOR

<400> 48

His Glu Thr Thr Pro Asn Lys Gly Ser Gly Thr Thr Ser Gly Thr Thr  
1 5 10 15

Arg Leu Leu Ser Gly His Thr Cys Phe Thr Leu Thr Gly Leu Leu Gly  
20 25 30

Thr Leu Val Thr Met Gly Leu Leu Thr  
35 40

<210> 49

<211> 35

<212> PRT

<213> T. BRUCEI

<400> 49

Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Gly Ala Ala Thr  
1 5 10 15

Leu Lys Ser Val Ala Leu Pro Phe Ala Ile Ala Ala Ala Leu Val  
20 25 30

Ala Ala Phe

35

<210> 50

<211> 36

<212> PRT

<213> HAMSTER

<400> 50

Gln Lys Glu Ser Gln Ala Tyr Tyr Asp Gly Arg Arg Ser Ser Ala Val  
1 5 10 15

Leu Phe Ser Ser Pro Pro Val Ile Leu Leu Ile Ser Phe Leu Ile Phe  
20 25 30

Leu Met Val Gly

35

<210> 51

<211> 44

<212> PRT

<213> RAT

<400> 51

Lys Thr Ile Asn Val Ile Arg Asp Lys Leu Val Lys Cys Gly Gly Ile  
1 5 10 15

Ser Leu Leu Val Gln Asn Thr Ser Trp Leu Leu Leu Leu Leu Ser  
20 25 30

Leu Ser Phe Leu Gln Ala Thr Asp Phe Ile Ser Leu  
35 40

<210> 52

<211> 36

<212> PRT

<213> T. BRUCEI

<400> 52

Glu Ser Asn Cys Lys Trp Glu Asn Asn Ala Cys Lys Asp Ser Ser Ile  
1 5 10 15

Leu Val Thr Lys Lys Phe Ala Leu Thr Val Val Ser Ala Ala Phe Val  
20 25 30

Ala Leu Leu Phe

35

<210> 53

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:SYNTHETIC

<400> 53

gaaggggcccc caagagatcc aagtctcct

29

<210> 54

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:SYNTHETIC

<400> 54